Master Informatics – Games Engineering

Introduction to FPSO
(Fachprüfungs- und Studienordnung – Examination and Academic Regulations)

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    (secretary of the examination committee)
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Master Games related websites of the faculty:

http://www.in.tum.de/fuer-studierende/master-studiengaenge/informatik-games-engineering.html

in particular: links to

- current FPSO of Master Games
- current APSO (general examination and academic regulations of TUM)
FPSO – Subjects You Have to Take

(a) Compulsory Modules (Pflichtmodule) (30 ECTS)
- IN2015 Image Synthesis (4V, 5 ECTS)
- IN2107 Master-Seminar (2S, 5 ECTS)
- IN2106 Master Lab Course (6P, 10 ECTS)
- IN2257 Additional Master Lab Course (6P, 10 ECTS)

(b) Compulsory Elective Modules (Wahlpflichtmodule) (at least 35 ECTS)
- out of the elective area "Internet-Technologies" at least 5 ECTS
- out of the elective area "Database Systems" at least 6 ECTS
- out of two lines of specialization together at least 24 ECTS, at least 10 ECTS out of each
(c) Elective Modules (Wahlmodule) (19 ECTS or less)
   - any modules out of any line of specialization or
   - any subject area of the catalog of elective modules of the Master Informatics (up to 6 ECTS modules of LMU of the fields of Media-Informatics or Human Computer Interaction can be taken) or
   - IN2169 Guided Research (6P, 10 ECTS) (analogous to Master Informatics)

(d) Support Elective Modules (Überfachl. Grundlagen) (6 ECTS)
   - any modules of the catalog of support elective modules of Master Informatics
Elective Areas and Lines of Specialization

Elective area „internet-technologies“:
- IN2097 Advanced Computer Networking 3V+1Ü 5 ECTS E
- IN2259 Distributed Systems 3V+1Ü 5 ECTS E

Elective area „database systems“:
- IN2031 Einsatz und Realisierung von Datenbanksystemen 3V+2Ü 6 ECTS D
- IN2118 Database Systems on Modern CPU Architectures 3V+2Ü 6 ECTS E

Line of specialization „Computer graphics and animation“ (Prof. Dr. R. Westermann, Prof. Dr. N. Thuerey):
- IN2297 Geometry Processing 4V 6 ECTS E
- IN2298 Advanced Deep Learning for Physics 4V 6 ECTS E
- IN2026 Visual Data Analytics 3V+1Ü 5 ECTS E
- IN2354 3D Scanning and Motion Capture 2V + 2Ü 6 ECTS E
Elective Areas and Lines of Specialization

**Line of specialization „Numerics and Simulation“** (Prof. Dr. H. Bungartz, Prof. Dr. T. Huckle, Prof. Dr. M. Bader, Prof. Dr. F. Jenko, Prof. Dr. C. Mendl):

- IN2010 Modellbildung und Simulation 4V+2Ü 8 ECTS D
- IN2252 High Performance Computing - Algorithms and Applications 2V+1Ü 4 ECTS E
- IN2012 Parallel Numerics 2V+2Ü 5 ECTS E
- IN2001 Algorithms of Scientific Computing 4V+2Ü 8 ECTS E

**Line of specialization „Hardware and Systems-Programming“** (Prof. Dr. F. Schulz, Prof. Dr. M. Gerndt):

- IN2076 Advanced Computer Architecture 4V 6 ECTS E
- IN2147 Parallel Programming 2V+2Ü 5 ECTS E
- IN2075 Microprocessors 2V+1Ü 4ECTS E
Elective Areas and Lines of Specialization

**Line of specialization „Visual Computing“** (Prof. Dr. D. Cremers, Prof N. Navab, PhD, Prof. Dr. M. Niessner, Prof. Dr. L. Leal-Taixe, Prof. Dr. A. Dai, PD Dr. T. Lasser):

- IN2364 Advanced Deep Learning for Computer Vision 2V+4Ü 8 ECTS E
- IN2246 Computer Vision I: Variational Methods 3V+3Ü 8 ECTS E
- IN2228 Computer Vision II: Multiple View Geometry 4V+2Ü 8 ECTS E
- IN2375 Computer Vision III: Detection, Segmentation, and Tracking 2V+2Ü 6 ECTS E
- IN2354 3D Scanning and Motion Capture 2V+2Ü 6 ECTS E
- IN2124 Basic Mathematical Methods for Imaging and Visualization 2V+2Ü 5 ECTS E

**Line of specialization „Autonomous Systems“** (Prof. Dr. A. Knoll, Prof. Dr. D. Burschka, Prof. Dr. S. Haddadin, Prof. Dr. M. Althoff):

- IN2222 Cognitive Systems 3V 4 ECTS D/E
- IN2138 Robot Motion Planning 3V 4 ECTS E
- IN2067 Robotics 3V+2Ü 6 ECTS E
- IN2349 Advanced Deep Learning for Robotics 3V+2Ü 6 ECTS E
  - IN2064 Machine Learning 4V+2Ü 8 ECTS E
  - IN2332 Statistical Modeling and Machine Learning 4V+2Ü 8 ECTS E
Elective Areas and Lines of Specialization

**Line of specialization „Game Theory & Algorithmic Economics”** (Prof. Dr. M. Bichler, Prof. Dr. F. Brandt, Prof. Dr. H. Seidl):

- IN2239 Algorithmic Game Theory 2V+2Ü 5 ECTS E
- IN2229 Computational Social Choice 3V+2Ü 6 ECTS E
- IN2211 Auction Theory and Market Design 2V 3 ECTS E
- IN296 Games on Graphs 2V+2Ü 5 ECTS E

**Line of specialization „Internet-models, -technologies, and -applications”** (Prof. Dr. G. Carle, Prof. Dr. F. Matthes):

- IN2045 Netzwerkanalyse - statistische und formale Modelle und Methoden 3V+1Ü 5 ECTS D
- IN2087 Software Engineering for Business Applications - Master's Course Web Application Engineering 2V+2Ü 5 ECTS E
- IN2194 Peer-to-Peer-Systems and Security 3V+2Ü 6 ECTS E
- IN2101 Netzsicherheit 3V+1Ü 5 ECTS D
Elective Areas and Lines of Specialization

Line of specialization „Interaction and Communication” (Prof. Dr. G. Klinker, Prof. Dr. H. Runkler, Prof. Dr. J. Esparza, Prof. Dr. K. Bengler):

- IN2018 Augmented Reality 3V+2Ü 6 ECTS E
- IN2111 3D User Interfaces 3V+2Ü 6 ECTS E
  - IN2030 Data Mining and Knowledge Discovery 2V 3 ECTS E
  - IN2028 Business Analytics 3V 5 ECTS E
    - [IN2339] Data Analysis and Visualization in R 3V+1Ü 6 ECTS E
- MW0101 Produktergonomie 3V+1Ü 5 ECTS D
- IN5701 Virtual Reality 2V+2Ü 6 ECTS E
- EI0602 Audiokommunikation 2V+1Ü 5 ECTS D
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<thead>
<tr>
<th>Sem</th>
<th>Sum of ECTS credits</th>
<th>Compulsory Modules and Compulsory Elective Area Modules</th>
<th>Compulsory Elective Modules: Lines of Specialization</th>
<th>Elective Modules</th>
<th>Supportive Elective Modules</th>
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<td>Modules out of the lines of specialization 11 ECTS</td>
<td>Modules out of the catalog of elective modules of the Master Informatics 5 ECTS</td>
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<td>IN2107 Master-Seminar 5 ECTS</td>
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Games Specific Lab Courses

- Basically: You can do any „normal“ Master Informatics lab-course (IN2106, IN2257, (...))

- However: Each Semester ONE formal instance of games specific master lab course (without module number):
  - Groups of 3 or 4 students
  - Individual topics (comparable to a team thesis topic) offered by lines of specialization (see in.tum.de website)
  - construction of a game according to the ETH method
  - not scheduled/distributed as normal lab-courses but by individual appointment with respective contact-persons at chairs
Credit Requirements

- until the end of the 2nd semester: at least one module
- until the end of the 3rd semester \( \geq 30 \text{ ECTS} \)
- until the end of the 4th semester \( \geq 60 \text{ ECTS} \)
- until the end of the 5th semester \( \geq 90 \text{ ECTS} \)
- until the end of the 6th semester 120 ECTS

- **About to fail** one of the requirement deadlines? \( \rightarrow \) contact the chairman of the examination committee (**Prüfungsausschussvorsitzender**) in written form and state the reasons
- **Failure can be forseen** \( \rightarrow \) contact one of the academic student advisors (**Studienberatung**) immediately
Stay Abroad: Planning and Transfer Credits

● before your stay abroad: contact me and plan your stay with her in detail.

● for each module from abroad that you want to get transfer credits for here:
  ○ for foreign modules that have sufficient similarities with an existing module from TUM: contact the respective TUM prof
  ○ for foreign modules that fit into a line of specialization but don’t have a counterpart at TUM: contact any of the TUM professors responsible for the line of specialization or Georg Groh
  ○ for “generic” foreign modules corresponding to a lab course or seminar: contact Georg Groh
International students and „non-Games-Bachelors“:
Please regard that the bridging courses MUST ALL be passed in your first year of study!!!!!!